

## **WHAT IS CLAIMED IS:**

1. A method of providing software for use by a control unit of a vehicle, said method comprising:

before its use by the control unit, signing the software against falsification, using a secret or private key of a software signature site, according to a public-key method; and

checking the signed software for integrity, using a public key complementary to the secret key of the software signature site.

2. The method according to Claim 1, further comprising generating a software signature certificate, using the public key of the software signature site and a secret key of a control entity, of a trust center, according to a public-key method.

3. The method according to Claim 1, wherein one of a control entity certificate and a trust center certificate is generated according to a public-key method by using the secret key of the control entity.

4. The method according to Claim 1, wherein clearing code data are signed using a secret key of a clearing code site according to a public key method.

5. The method according to Claim 2, wherein a clearing code site signature certificate is generated using the secret key of the control entity of the trust center according to a public-key method.

6. The method according to Claim 3, wherein the trust center certificate is protected against falsification and exchange, in a protected memory area in the control unit.

7. The method according to Claim 1, wherein the clearing code site signature certificate, the software signature certificate, the clearing code data and their signature as well as the software and its signature are stored in the control unit.

8. The method according to Claim 2, wherein the software signature certificate includes at least one validity restriction.

9. The method according to Claim 5, wherein the clearing code site signature certificate includes at least one validity restriction, a restriction to a particular control unit which is designated by means of an identification number stored in the control unit in an invariable manner, and a restriction to a vehicle identification number of a particular vehicle.

10. The method according to Claim 2, wherein the software signature certificate is checked for integrity according to a public-key method, using a public key of the trust center.

11. The method according to Claim 2, wherein the signed software is checked for integrity according to a public key method, using the public key of the software signature site contained in the software signature certificate.

12. The method according to Claim 5, wherein the clearing code site signature certificate is checked for integrity according to a public key method, using a public key of the trust center.

13. The method according to Claim 4, wherein the signed clearing code data are checked for integrity according to a public key method, using a public key of the clearing code site contained in the clearing code site signature certificate.

14. The method according to Claim 1, wherein the control unit is equipped with a sequence-controlled microprocessor that implements one of the above-described methods.

15. A control unit for a motor vehicle, which implements a method according to Claim 1.

16. A data processing system for a motor vehicle, which implements a method according to Claim 1.

17. A computer program product sequence control of a data processing system of a motor vehicle or motorcycle, which implements the method according to Claim 1.

18. A data carrier, comprising a computer program product according to Claim 17.